

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	YOUNGER AHLUWALIA	Art Unit: 1794
Serial No.:	10/766,649	Examiner: Victor S. Chang
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Commissioner for Patents
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SUPPLEMENTAL BRIEF ON APPEAL

This Supplemental Brief incorporates minor changes into the February 26, 2009 Brief to further clarify the points raised therein. Accordingly, entry of this Supplemental Brief is respectfully requested.

No fee is believed to be due in connection with the filing of this Supplemental Brief. Nonetheless, the Commissioner is hereby authorized to charge any such fee determined to be due, and credit any overpayment, to Deposit Account No. 06-1205.

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BRIEF ON APPEAL

I. Real Party In Interest

The real party in interest is GAF/Elk. On February 23, 2007, GAF Materials Corporation, d/b/a GAF, purchased a controlling interest in ElkCorp, the assignee of the instant application.

II. Related Appeals and Interferences

There are no related interferences. A related appeal was filed in U.S. Patent Application No. 10/354,220.

Appellant is not aware of any other appeals, judicial proceedings or interferences that will affect directly, will be affected directly by, or will otherwise have a bearing on, the decision in this appeal.

III. Status Of Claims

The status of the claims is as follows:

- Claims 2-6, 8-12, 14, 15 are withdrawn from consideration but not canceled.
- Claims 1, 7, 13, and 16-20 stand finally rejected and are under appeal.

IV. Status Of Amendments

The claims have not been amended after the final rejection of April 29, 2008. A copy of the appealed claims is attached as Section X, "Claims Appendix."

V. Summary Of Claimed Subject Matter

Applicant's claimed invention is generally directed to fire resistant composite materials. In particular embodiments, the composite materials may be used in building materials, motor vehicles, heaters, dryers, mattresses, draperies, furniture upholstery, and the like. The invention further relates to articles of manufacture that utilize the composite materials of the invention, *e.g.*, building materials and mattresses.

According to the United States Consumer Product Safety Commission ("CPSC"), the United States has one of the highest fire related death and injury rates in the world. Fire is the second leading cause of accidental deaths in the home. Combustible mattresses and upholstery contribute greatly to the deaths, injuries and damages caused by home fires. Recently, a mandatory mattress rule, 16 CFR § 1633, was implemented by the CPSC which requires that all mattresses manufactured or imported into the United States on or after July 1, 2007 must meet the CPSC's flammability standard.

Fire resistant materials have been available for use in the mattress industry. For example, Dupont has manufactured fabrics made from a fire resistant thread called Kevlar™. The mattress industry has used Kevlar™ as well as other types of fire resistant materials, such as glass thread, flame retardant polyurethane foams, flame retardant ticking, flame retardant cushioning and flame retardant tape. *See* instant specification, paragraph 0005. However, use of these materials may be cost prohibitive. *Id.* In addition, certain fire resistant materials, such as glass threads, are difficult to work with and can break, adding to the time required for manufacturing the mattress. *Id.* Flame retardant tapes are also difficult to work with, increase production time and only

come in a limited number of colors. *See* instant specification, paragraph 0006. Flame retardant polyurethanes often release undesirable noxious gases when exposed to fire, and thus are not ideal. *Id.* Further, known processes for flame retarding the ticking (i.e., the outer decorative fabric of the mattress) often compromise the characteristics of the fabric (e.g., it may no longer be soft, drapable, pliable, flexible, etc.). *Id.*

The Applicant has discovered that fire resistant composite materials can be made for use in the production of mattresses and other products, such as upholstery, furniture, draperies, and the like, which impart desired fire resistant properties, but do not significantly add to the cost or production time and which do not compromise the desired characteristics of the products incorporating them.

In the invention recited in appealed Claim 1, the composite material comprises a first layer which comprises a prefabricated microcells component, a surfactant component, surfactant-generated microcells, a filler component and a binder component. *See e.g.*, instant specification, paragraphs 0022 and 0027. The invention recited in appealed Claim 1 also comprises a second layer comprising a metallic component which is adhered to the first layer. *Id.*

VI. Grounds of Rejection To Be Reviewed On Appeal

1. Whether Claims 1, 7, 13, and 16-20 are not obvious under 35 U.S.C. §103 over U.S. Patent No. 6,093,481 (Lynn et al.), in view of U.S. Patent No. 6,365,533 (Horner Jr. et al.) and U.S. Patent No. 5,713,974 (Martin et al.)?

VII. The Cited Art

Lynn et al. relates to rigid foam insulation boards having tough, lightweight, highly insulating facers. Col. 1, lines 54-57. One or both facers of Lynn et

al. are polymeric materials that are characterized as a film by Lynn et al. Col. 3, lines 26-28. Lynn et al. indicates that the total thickness of the insulation boards is about 0.5 inches (~ 12.7 mils) to about 4.25 inches (~106 mils), of which the thickness of the facing sheets is generally 0.3 mils to 5 mils, with monolayer facers being preferably about 0.3 mils to 3 mils and composite facers being preferably about 0.3 mils to 4 mils. Col. 5, lines 34-41.

Horner Jr. et al. disclose a facer member for use in the construction industry comprising a preformed fiber mat substrate coated on one side with a prefoamed, self-sustaining foam mixture. The facer member disclosed by Horner Jr. et al. can be used to manufacture insulation boards comprising a pair of facer members laminated to the surfaces of the foam core of a traditional insulation board. See Horner Jr. et al., col. 5, lines 34-39. The facers of Horner et al. include a coating that is from about 5 mils to about 100 mils. Col. 4, lines 6-15. The facers of Horner et al. further include a fibrous mat on which the coating is applied, which have a thickness of about 10 to about 30 mils. Col. 3, lines 34-35. Horner et al. further teaches that the facers can have a thickness of about 100 mils.

Martin et al. disclose evacuated microspheres and methods of manufacture of the microspheres. The evacuated microspheres are indicated as being useful as thermal insulating materials when incorporated into insulating coatings. See the Abstract; col. 1, lines 8-11; and col. 3, lines 62-67.

VIII. Argument

As noted above, combustible mattresses, upholstery, draperies and the like are some of the items in the home that contribute greatly to deaths, injuries and damage

caused by fires. Recently, the CPSC implemented a mandatory mattress rule requiring that all mattresses made or imported into the U.S. must meet the CPSC's flammability standards. The present invention, for example, offers an effective solution by providing a composite material that can be used in the manufacture of mattresses, upholstery, furniture, draperies and the like that does not prohibitively increase the cost or time of manufacture and that does not compromise the desired characteristics of the products, but which imparts the desired fire resistant properties.

Claim 1 is the sole independent claim appealed. Claim 1 is directed to composite materials comprising a first layer which comprises a prefabricated microcells component, a surfactant component, surfactant-generated microcells, a filler component and a binder component. The invention recited in Claim 1 also comprises a second layer comprising a metallic component which is adhered to the first layer.

All the appealed claims stand rejected as obvious under 35 U.S.C. § 103(a). Appellant submits that the outstanding 35 U.S.C. § 103(a) rejection cannot be sustained for at least the reasons discussed below.

A. Claims 1, 7, 13, and 16-20 Are Not Obvious Under 35 U.S.C. § 103(a)

1. Claim 1 - The Office Action Has Failed to Articulate a Proper Rationale To Establish a Prima Facie Case of Obviousness

Appellant respectfully submits that the Office has failed to provide any rationale whatsoever that could reasonably be construed as establishing a *prima facie* case of obviousness against Claim 1.

It is well established that the Office bears the burden of establishing a *prima facie case* of obviousness. *See* MPEP § 2142. If the examiner does not produce a

prima facie case of obviousness, then the Appellant is under no obligation to submit evidence of nonobviousness. *Id.*

In *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406, 82 USPQ2d 1385 (2007), the Supreme Court noted that it had previously set out a framework for applying the statutory language of § 103 in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), in which it held that:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

Graham, 383 U.S. at 17 and 18 (emphasis added).

Referring to this framework set out in *Graham*, the Supreme Court in *KSR* further stated that “while the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls.”

In *KSR*, the Supreme Court also reiterated the well-established principle that “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). *See also* MPEP § 2142 and *KSR*, 550 U.S. at 418, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval).

Thus, at the very least, in order to establish a *prima facie* case of obviousness, the Office must analyze the *Graham* factors and articulate reasoning with some rational underpinning to support the asserted obviousness conclusion. Merely

relying on conclusory statements renders an asserted *prima facie* case of obviousness deficient.

On page 3 of the April 29, 2008 final rejection (Final Office Action), the Office admits that Lynn et al. fails to teach: 1) a prefabricated microcells component, 2) a surfactant component, and 3) surfactant-generated microcells. The Office then looks to Horner Jr. et al. for teaching points two and three, and Martin et al. for teaching point one. On pages 3 and 4 of the Final Office Action, after providing a brief description of the alleged teachings of Horner Jr. et al. and Martin et al., the Final Office Action states the following:

It would have been obvious to one of ordinary skill in the art to manufacture Lynn's bilaminate with Horner's adhesive latex/filler/surfactant coating composition, incorporated with Martin's microspheres (preformed microcells), as the outer layers of the bilaminate facer, motivated by the desire to provide improved durability and thermal insulation value of the facer, and with reasonable expectation of success at the time the claimed invention was made.

(Emphasis added.)

Appellant respectfully submits that the Final Office Action offers nothing more than the conclusory statement that, since all of elements of Claim 1 are allegedly well known, it would have been obvious to one of ordinary skill in the art to modify Lynn et al. to arrive at Appellant's claimed invention in order to improve the durability and the thermal insulation value of the facer. Even if the cited art teaches points 1-3 above as alleged, the Final Office Action is completely lacking of a rationale regarding the level of one of ordinary skill in the art at the time of Appellant's invention as it pertains to the knowledge required to incorporate "Horner's adhesive

latex/filler/surfactant coating composition” and “Martin’s microspheres” within the outer layers of the bilaminate facer of Lynn et al., let alone address the knowledge required to incorporate those features while achieving the benefits alleged by the Final Office Action. Hence, at the very least, the Final Office Action fails to provide a proper analysis of the *Graham* factors.

Furthermore, the Final Office Action provides no rationale whatsoever to account for the leap of logic one of ordinary skill in the art would be required to make in order to modify the materials disclosed in Lynn et al. to achieve a new composite material which includes the admittedly lacking elements of Claim 1 and still function as intended, especially when the Office Action fails to provide any level of specificity as to the specific structure and composition of the proposed composite material.

As discussed below, the level of specificity for combining particular elements to achieve the results desired by Lynn et al. and Horner Jr. et al. is significant. Contrary to the Final Office Action’s assertions, materials cannot simply be added and removed on a whim without directly affecting the characteristics of the materials.

Particularly, the facers of Lynn et al. are characterized as films at col. 3, line 28. Lynn et al. further teach that the total thickness of the insulation boards which employ the facers is about 0.5 inches (~ 12.7 mils) to about 4.25 inches (~106 mils), of which the thickness of the facers is generally 0.3 mils to 5 mils, with monolayer facers being preferably about 0.3 mils to 3 mils and composite facers being preferably about 0.3 mils to 4 mils. Col. 5, lines 34-41.

Horner Jr. et al. teaches a foamed facer for an insulation board that comprises a fiber glass mat coated with a prefoamed composition comprising a

thixotropic polymer latex (binder), a foam sustaining surfactant (surfactant generated microcells), a filler, such as clays, and a flame retardant.

In stark contrast to Lynn et al., the facers of Horner Jr. et al. include a coating that is from about 5 mils to about 100 mils. Col. 4, lines 6-15. The facers of Horner Jr. et al. further include a fibrous mat on which the coating is applied, which have a thickness of about 10 to about 30 mils. Col. 3, lines 34-35. Horner Jr. et al. further teaches that the facers can have a thickness of about 100 mils. Appellant respectfully asserts that one of ordinary skill in the art looking to Horner Jr. et al. would not combine the teachings of Horner et al. with Lynn et al. because Horner et al. relates to facers that are very thick (e.g. 100 mils) whereas Lynn et al. teaches facers that are films (i.e. very thin) having a thickness of 0.3 to 5 mils for composite facers.

Since the Final Office Action fails to address how these technical differences between Lynn et al. and Horner Jr. et al. could be reconciled by one of ordinary skill in the art, the Final Office Action lacks a further element from its analysis for establishing a *prima facie* case of obviousness, which Appellant again notes the Office has the burden of establishing.

Also, without having any level of specificity as to the composite material proposed by the Final Office Action, Appellant is unable to analyze and rebut whether the alleged benefits of the Final Office Action's composite material, i.e. "improved durability and thermal insulation value of the facer," could even be achieved.

For at least these reasons, Appellant submits that the Office did not meet its burden of establishing a *prima facie* case of obviousness against Claim 1 in view of Lynn et al., Horner Jr. et al., and Martin et al., and that the Final Office Action's mere

conclusory statements are insufficient. Accordingly, the rejection under 35 U.S.C § 103(a) is believed obviated, and its withdrawal is respectfully requested.

2. Dependent Claims 7, 13, and 16-20
The Office Action Has Failed to Articulate a Proper Rationale To Establish a *Prima Facie* Case of Obviousness

The Final Office Action alleges that the proposed combination in view of Lynn et al., Horner Jr. et al., and Martin et al. teaches all the limitations of dependent Claims 7, 13, and 16-20. Appellant respectfully disagrees. For all the reasons mentioned above, Appellant asserts that the Office has failed to establish a *prima facie* case of obviousness against Claims 7, 13, and 16-20 which all depend from Claim 1 directly or indirectly.

Accordingly, Appellant respectfully requests withdrawal of the 35 U.S.C § 103(a) rejection.

IX. Conclusion

It is respectfully submitted that the final rejection of the claims should be reversed for the reasons stated.

Respectfully submitted,

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X. Claims Appendix

1. A heat insulating and fire resistant composite material comprising:
 - a. a first layer which comprises a prefabricated microcells component, a surfactant component, surfactant-generated microcells, a filler component and a binder component; and
 - b. a second layer comprising a metallic component adhered to the first layer.
7. The composite material according to claim 1, wherein said first layer is planar and the second layer is adhered to one side of the first layer.
13. The composite material according to claims 1 or 2 wherein said composite material further includes a flame retardant material.
16. The composite material according to claims 1 or 2, wherein the metallic component is selected from a group consisting of aluminum or stainless steel.
17. The material according to claim 16, wherein the metallic component is aluminum foil.
18. The composite material according to claims 1 or 2, wherein the filler component is clay.

19. The composite material according to claims 1 or 2, wherein the surfactant component is a fast soap.

20. The composite material according to claims 1 or 2, wherein the surfactant component forms surfactant-generated microcells.

XI. Evidence Appendix

NONE

XII. Related Proceedings Appendix

1. Board decision in U.S. Application No. 10/354,220

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